THE STATE OF NEW HAMPSHIRE
DEPARTMENT OF TRANSPORTATION
August 13, 2014

CHRISTOPHER D. CLEMENT, SR.
COMMISSIONER

Dean Shankle Jr, Town Administrator
Town of Hooksett
35 Main Street
Hooksett, NH 03106

SUBJECT: CRITICAL DEFICIENCY
Hooksett Bridge #083/150 - Bypassed Historic over Merrimack River (a.k.a. "Lilac Bridge")

Dear Mr. Shankle:

This letter serves as a follow-up to a phone conversation (occurring on 8/13/14 at 9:15AM) between Nicholas Goulas, P.E. (NHDOT) and Leo Lessard of Hooksett’s Public Works Department.

During yesterday’s municipal bridge inspection for the above numbered bridge, the following critical deficiency was noted:

The upstream lower chord of this closed/bypassed steel truss bridge is severed/fractured in span #3, approximately 36’ from the north abutment. This bridge has no remaining safe calculated load capacity, and is now considered to be unsafe for any/all loading. Due to the critical nature of this defect in the lower chord member, there is an imminent risk of bridge failure.

The bridge is currently inaccessible to highway traffic and pedestrians, and is therefore considered to be adequately closed and barricaded. However, a partial or complete collapse of this bridge could create many serious issues:

1) This bridge carries a sewer main along the upstream fascia; therefore collapse of the bridge may create environmental hazards.
2) There is frequent boat/recreational activity on the Merrimack River at this bridge site.
3) There are two bridges immediately downstream (3-span railroad truss, and Main Street over Merrimack River, a.k.a. “Hooksett 080/148”). Collapse of this closed truss bridge could cause debris accumulation issues for the downstream bridges.

Due to the Imminent risk of bridge failure, this bridge requires emergency stabilization or partial/complete demolition to mitigate the risks mentioned above.

We are enclosing a copy of the inspection report and photos for your use. Please keep us informed of any actions taken by the Town so we can keep our records current. If you have any questions or comments, please contact us.

Sincerely,

Nancy J. Mayville, P.E.
Municipal Highways Engineer
Bureau of Planning and Community Assistance
Telephone: (603) 271-3344 / Fax: (603) 271-8093

NJW/jsa
Enclosures
cc: Leo Lessard, Hooksett Highway Manager
Commissioner, Department of Education
Risk Management Representative, Local Government Center

S:\Planning\Community Assistance\Municipal桥梁\HooksettBridge\Inspections\Critical 083-608-13-14.doc
TELEPHONE: 803-271-3734 • FAX: 603-271-3914 • TDD: RELAY NH 1-800-735-2964 • INTERNET: WWW.NHDOT.COM
STATE OF NEW HAMPSHIRE
INTER-DEPARTMENT COMMUNICATION

August 13, 2014

FROM:    Mark W. Richardson, P.E.
         Administrator
         Bureau of Bridge Design

SUBJECT: CRITICAL DEFICIENCY
         Hookset 083/150
         Bypassed Historic over Merrimack River (a.k.a. “Lilac Bridge”)

TO:      Nancy J. Mayville, P.E.
         Municipal Highways Engineer
         Bureau of Planning and Community Assistance

This letter serves as a follow-up to a phone conversation (occurring on 8/13/14 at 9:15AM)
between Nicholas Goulas, P.E. (NHDOT) and Leo Lessard of Hookset’s Public Works
Department.

During a recent municipal bridge inspection, the following critical deficiency was noted:

The upstream lower chord of this closed/bypassed steel truss bridge is severed/fractured in span
#3, approximately 36’ from the north abutment. This bridge has no remaining safe calculated
load capacity, and is now considered to be unsafe for any/all loading. Due to the critical nature
of this defect in the lower chord member, there is an imminent risk of bridge failure.

The bridge is currently inaccessible to highway traffic and pedestrians, and is therefore
considered to be adequately closed and barricaded. However, a partial or complete collapse of
this bridge could create many serious issues:

1) This bridge carries a sewer main along the upstream fascia; therefore collapse of the
bridge may create environmental hazards.
2) There is frequent boat/recreational activity on the Merrimack River at this bridge site.
3) There are two bridges immediately downstream (3-span railroad truss, and Main Street
over Merrimack River; a.k.a. “Hooksett 080/148”). Collapse of this closed truss bridge
could cause debris accumulation issues for the downstream bridges.

Due to the imminent risk of bridge failure, this bridge requires emergency
stabilization or partial/complete demolition to mitigate the risks mentioned above.

We are enclosing two copies of the inspection report and photos for your use. Please keep us
informed of any actions taken by the town so we can keep our records current. If you have any
questions or comments, please contact us.

MWR/nbg

Enclosure

cc:    C. Clement Sr., Commissioner
       W. Cass, Project Development
       K. Najj, Federal Highway Administration
       J. Lorden, Chief Bridge Inspector
       L. Paquette, Administrative Secretary
       N. Mayville, Municipal Highways Engineer
       Bureau of Planning & Community Assistance
Bridge Inspection Report

Date of Inspection: 08/12/2014
Date Report Sent: 8/13/2014
☑️ Picture taken during inspection
Owner: Municipality

☑️ Critical Deficiency Status: There is an imminent risk of bridge failure due to a severed lower chord on the upstream truss in span #3 (Critical Deficiency 8/13/2014).

Recommended Postings:
Weight: This bridge should be posted 'Bridge Closed' and barricaded.
☑️ Weight Sign OK
Width: Not Required
☑️ Width Sign OK

Primary Height Sign Recommendation: None
Optional Centerline Height Sign Rec: None
Clearances:
Over: 15.42 (Feet)
Under: 0.00
Route: 15.42
☑️ Height Signs OK

Condition:
Historic or Bypassed
Deck: 1 Closed - Failing
Superstructure: 1 Closed - Failing
Substructure: 1 Closed - Failing
Culvert: N/A (NB1)

Structure Type and Materials:
Number of Spans Main Unit: 3
Number of Approach Spans: 0
Main Span Material and Design Type:
Steel Through Truss

Sufficiency Rating: N.A.
NBI Status: Not Applicable
Bridge Rail: N/A or Not Required
Rail Transition: N/A or Not Required
Bridge Approach Rail: N/A or Not Required
Approach Rail Ends: N/A or Not Required

Bridge Dimensions:
Length Maximum Span: 170.0 ft
Left Curb/Sidewalk Width: 0.0 ft
Right Curb/Sidewalk Width: 5.0 ft
Width Curb to Curb: 18.7 ft
Total Bridge Width: 22.0 ft
Approach Roadway Width (W/ Shoulders): 18.0 ft
Total Bridge Length: 490.0 ft

Bridge Service:
Type of Service on Bridge: Other (NB1)
Type of Service under: Waterway
Lanes on bridge: 0
Lanes Under: NA

NH Bridge Type: High Truss
Deck Type: Timber
Wearing Surface: Bituminous
Membrane: None
Deck Protection: None
Pavement thickness: 0.0 in
Curb Reveal: Not Applicable
Plan Location: A-60, 1-10-3-7, 1-4-1-1

Year Built: 1909
Year Rebuilt: Not Rebuilt
Detour Length: 99.0 mi

AADT: 0
Percent Trucks: 0%
Year of AADT: 2013
Future AADT: 0
Year of Futures AADT: 2032
Federal or State Definition Bridge: Fed. Definition Bridge
Roadway Functional Class: Rural Local
New Hampshire Highway System and Class: Unmaintained Highway
Eligibility for the National Register of Historic Places: Eligible (Historic)
Traffic Direction: Not hwy traffic

**National Bridge Inventory (NBI) Appraisal Ratings:**
- Deck Geometry: Not Applicable (NBI)
- Underclearances: Not Applicable (NBI)
- Approach Alignment: Equal Minimum Criteria
- Structural Evaluation: N
- Channel/Channel Protection: Bank Slumping
- Waterway Adequacy: Above Desirable Criteria
- Bridge Scour Critical Status: Closed - Failing
- Riprap Condition: Fair Condition
- Debris Present: No Debris Present

*WATER LOW 9/23/09. PIERS APPEAR WELL RIPPURPED.*

Date of Underwater Inspection: Not Applicable

### AASHTO CoRe Element Condition State Data:

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Env.</th>
<th>Material Notes and Condition Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>31</td>
<td>Timber Deck - Bare</td>
<td>Low</td>
<td><strong>FENCED AND CLOSED. TIMBER DECK APPEARS TO BE HEAVILY DECAYED.</strong></td>
</tr>
<tr>
<td>113</td>
<td>Painted Steel Stringer</td>
<td>Low</td>
<td><strong>STRINGER AND SWAYBRACE DROPPED AT WEST, SPAN #1, BAY #2.</strong></td>
</tr>
<tr>
<td>117</td>
<td>Timber Stringer</td>
<td>Low</td>
<td><strong>STRINGER AND SWAYBRACE DROPPED AT WEST, SPAN #1, BAY #2. Also, dropped stringer noted in Span #3.</strong></td>
</tr>
<tr>
<td>124</td>
<td>Painted Steel Bottom Chord (Thru Truss)</td>
<td>Low</td>
<td><em>The upstream lower chord of this closed/assisted steel truss bridge is severed/fractured in Span #1, approximately 36' from the north abutment.</em></td>
</tr>
<tr>
<td>126</td>
<td>Painted Steel Thru Truss (Exclude Bottom Chord)</td>
<td>Low</td>
<td>&lt; none &gt;</td>
</tr>
<tr>
<td>128</td>
<td>Painted Steel Beam</td>
<td>Low</td>
<td>&lt; none &gt;</td>
</tr>
<tr>
<td>211</td>
<td>Other Material Pier Wall</td>
<td>Low</td>
<td>&lt; none &gt;</td>
</tr>
</tbody>
</table>

*NH DOT 008 Inspection Hooksett 083/150 Wed 8/13/2014 10:37:24 Page 2 of 6*
# Bridge Inspection Report

**No.** | **Description** | **Env.** | **Material Notes and Condition Notes**
--- | --- | --- | ---
216 | Reinforced Concrete Abutment | Low | (none)
217 | Other Material Abutment | Low | CONCRETE FOOTING CRACKED AT SOUTH CENTER.
334 | Coated Metal Bridge Railing | Moderate | **Steel Pipe Rail**
383 | Section Case Condition Warning Flag | Low | RULES THROUGH FLOOR BEAMS AND PAIRED CUPS. THE UPSTREAM FLOWER END OF THE CLOSER-BEZIEMED STAINLESS STEEL RAIL IS DAMAGED AND SHOWING THE DECK AT 100% APPEARANCE.

<table>
<thead>
<tr>
<th>No.</th>
<th>Description</th>
<th>Env.</th>
<th>Quantity</th>
<th>Units</th>
<th>State 1</th>
<th>State 2</th>
<th>State 3</th>
<th>State 4</th>
<th>State 5</th>
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</thead>
<tbody>
<tr>
<td>31</td>
<td>Timber Deck - Bare</td>
<td>Low</td>
<td>10,775</td>
<td>(SF)</td>
<td>0 %</td>
<td>0 %</td>
<td>0 %</td>
<td>100 %</td>
<td>0 %</td>
</tr>
<tr>
<td>113</td>
<td>Painted Steel Stringer</td>
<td>Low</td>
<td>262</td>
<td>(LF)</td>
<td>0 %</td>
<td>0 %</td>
<td>0 %</td>
<td>100 %</td>
<td>0 %</td>
</tr>
<tr>
<td>117</td>
<td>Timber Stringer</td>
<td>Low</td>
<td>131</td>
<td>(LF)</td>
<td>0 %</td>
<td>0 %</td>
<td>0 %</td>
<td>100 %</td>
<td>0 %</td>
</tr>
<tr>
<td>121</td>
<td>Painted Steel Bottom Closed Truss (Exclude Bottom)</td>
<td>Low</td>
<td>1,001</td>
<td>(LF)</td>
<td>0 %</td>
<td>0 %</td>
<td>0 %</td>
<td>100 %</td>
<td>0 %</td>
</tr>
<tr>
<td>126</td>
<td>Painted Steel Truss (Exclude Bottom)</td>
<td>Low</td>
<td>1,001</td>
<td>(LF)</td>
<td>0 %</td>
<td>0 %</td>
<td>0 %</td>
<td>100 %</td>
<td>0 %</td>
</tr>
<tr>
<td>152</td>
<td>Painted Steel Floor Deck</td>
<td>Low</td>
<td>528</td>
<td>(LF)</td>
<td>0 %</td>
<td>0 %</td>
<td>0 %</td>
<td>100 %</td>
<td>0 %</td>
</tr>
<tr>
<td>211</td>
<td>Other Material Pier Wall</td>
<td>Low</td>
<td>49</td>
<td>(LF)</td>
<td>0 %</td>
<td>100 %</td>
<td>0 %</td>
<td>0 %</td>
<td>0 %</td>
</tr>
<tr>
<td>215</td>
<td>Reinforced Concrete Abutment</td>
<td>Low</td>
<td>23</td>
<td>(LF)</td>
<td>0 %</td>
<td>100 %</td>
<td>0 %</td>
<td>0 %</td>
<td>0 %</td>
</tr>
<tr>
<td>217</td>
<td>Other Material Abutment</td>
<td>Low</td>
<td>23</td>
<td>(LF)</td>
<td>0 %</td>
<td>100 %</td>
<td>0 %</td>
<td>0 %</td>
<td>0 %</td>
</tr>
<tr>
<td>311</td>
<td>Moveable Bearing (roller, sliding, etc.)</td>
<td>Low</td>
<td>12</td>
<td>(EA)</td>
<td>0 %</td>
<td>0 %</td>
<td>100 %</td>
<td>0 %</td>
<td>0 %</td>
</tr>
<tr>
<td>334</td>
<td>Coated Metal Bridge Railing</td>
<td>Moderate</td>
<td>1,001</td>
<td>(LF)</td>
<td>0 %</td>
<td>0 %</td>
<td>0 %</td>
<td>100 %</td>
<td>0 %</td>
</tr>
<tr>
<td>363</td>
<td>Section Case Condition Warning Flag</td>
<td>Low</td>
<td>1</td>
<td>(EA)</td>
<td>0 %</td>
<td>0 %</td>
<td>0 %</td>
<td>100 %</td>
<td>0 %</td>
</tr>
</tbody>
</table>

**Bridge Notes:**

Bridge Closed, Bypassed. BARRICADED WITH CHAIN LINK FENCE AND BARBED WIRE, FENCE GATES LOCKED.

***8/13/2014 - Complete inspection could not be conducted due to limited accessibility and critical nature of deterioration. Bridge considered unsafe/unstable.***

**Approach and Roadway Notes:** CLOSED. SIGNED AND BARRICADED.
Bridge Inspection Report

Inspection History:

Inspection Date: 08/12/2014
Inspector: NJL
Notes:
NJL inspection comments -
DECK: DECK HOLED THROUGH AND HEAVILY DECAYED. SIDEWALK HAS LARGE HOLES.  
SUPERSTRUCTURE: FAILED OR CLOSED CONDITION.  UPSTREAM LOWER CHORD  
SEVERED IN SPAN #3.  
SUBSTRUCTURE: FAIR CONDITION.

PICTURES: D145-  
92. TIMBER STRINGERS APPEAR TO BE RESTING ON FLOORBEAM FLANGE IN SPAN #3.  
93. VIEW OF LOWER CHORD IN SPAN #3 ON NORTHEAST.  
94. LOWER CHORD SEVERED ON NORTHEAST, SPAN #3.  
95. TIMBER DECK HOLED AT NORTH.  
96. SEVERAL SIDEWALK BOARDS MISSING, POSSIBLY SOME LOOSE IN SPAN #1.  
97. TIMBER DECK HOLED AT SOUTH.

Inspection Date: 08/12/2013
Inspector: KLM
Notes:
KLM inspection comments -
DECK: DECK HOLED THROUGH AND HEAVILY DECAYED. SIDEWALK HAS LARGE HOLES.  
SUPERSTRUCTURE: FAILED OR CLOSED CONDITION.  
SUBSTRUCTURE: FAIR CONDITION.

Inspection Date: 08/16/2011
Inspector: KLM
Notes:
KLM inspection comments -
DECK: DECK HOLED THROUGH AND HEAVILY DECAYED. SIDEWALK HAS LARGE HOLES.  
SUPERSTRUCTURE: FAILED OR CLOSED CONDITION.  
SUBSTRUCTURE: FAIR CONDITION.

PICTURES: D072-  
35. NORTH APPROACH.  
36. SOUTH APPROACH.  
37. DECK HOLED THROUGH AND HEAVILY DECAYED.

Inspection Date: 09/23/2009
Inspector: FNM
Notes:
FNM- inspection comments -
DECK: DECK HOLED THROUGH AND HEAVILY DECAYED. SIDEWALK HAS LARGE HOLES.  
SUPERSTRUCTURE: FAILED OR CLOSED CONDITION.  
SUBSTRUCTURE: FAIR CONDITION.

Inspection Date: 09/20/2007
Inspector: DPC
Notes:
DPC - inspection comments -
DECK: DECK HOLED THROUGH AND HEAVILY DECAYED. SIDEWALK HAS LARGE HOLES.  
SUPERSTRUCTURE: FAILED OR CLOSED CONDITION.  
SUBSTRUCTURE: FAIR CONDITION.

Inspection Date: 12/28/2006
Inspector: RLM
Notes:
RLM inspection comments -
DECK: DECK HOLED THROUGH AND HEAVILY DECAYED. SIDEWALK HAS LARGE HOLES.  
SUPERSTRUCTURE: FAILED OR CLOSED CONDITION. STRINGER AND SWAYBRACE  
DROPPED AT WEST, SPAN #1, BAY #2.  
SUBSTRUCTURE: FAIR CONDITION.

PICTURES: C332- 40 & 41.
Bridge Inspection Report

Hooksett 083/150

Inspection History:

Inspection Date: 02/24/2006  Inspector: DPC

Notes:
Sufficiency Rating Calculation Accepted by DMB at 4/25/2006 08:35:48

Deck: 0 Failed - Closed
Super: 0 Failed - Closed
Substr: 5 Fair
Culvert: N N/A (NBI)

Inspection Date: 09/24/2004  Inspector: DPC

Notes:
Sufficiency Rating Calculation Accepted by DMB at 1/31/2006 11:35:48

Deck: 0 Failed - Closed
Super: 0 Failed - Closed
Substr: 5 Fair
Culvert: N N/A (NBI)

Inspection Date: 08/22/2003  Inspector: DPC

Notes:
Sufficiency Rating Calculation Accepted by DEP at 7/20/2004 14:25:49

Deck: 0 Failed - Closed
Super: 0 Failed - Closed
Substr: 5 Fair
Culvert: N N/A (NBI)

Inspection Date: 05/02/2003  Inspector: DPC

Notes:

Deck: 0 Failed - Closed
Super: 0 Failed - Closed
Substr: 5 Fair
Culvert: N N/A (NBI)

Inspection Date: 07/25/2001  Inspector: RLM

Notes:
Sufficiency Rating Calculation Accepted by DEP at 12-26-2001 08:06:26

Deck: 0 Failed - Closed
Super: 0 Failed - Closed
Substr: 5 Fair
Culvert: N N/A (NBI)

Inspection Date: 01/05/1999  Inspector: DPC

Notes:
Sufficiency Rating Calculation Accepted by DEP at 02-10-1999 15:44:55

Deck: 0 Failed - Closed
Super: 0 Failed - Closed
Substr: 5 Fair
Culvert: N N/A (NBI)

Inspection Date: 01/01/1997  Inspector: Not Available

Notes:
Sufficiency Rating Calculation Accepted by DEP at 12-23-98 08:03:50

Deck: 0 Failed - Closed
Super: 0 Failed - Closed
Substr: 5 Fair
Culvert: N N/A (NBI)

Inspection Date: 03/01/1995  Inspector: Not Available

Notes:
Sufficiency Rating Calculation Accepted by DEP at 12-23-98 08:03:50

Deck: 0 Failed - Closed
Super: 0 Failed - Closed
Substr: 5 Fair
Culvert: N N/A (NBI)
Bridge Inspection Report

Inspection History:

Inspection Date: 06/01/1993
Inspector: Not Available
Notes: 

Deck: 0 Failed - Closed
Super: 0 Failed - Closed
Substr: 5 Fair
Culvert: N/A (NBI)

Copy Distribution:

☑ (2) Bureau of Municipal Highways
☐ (3) Bureau of Municipal Highways
☐ Bureau of Turnpikes
☐ Border State
☐ Bureau of Rail and Transit
☐ Army Corps Of Engineers
☐ Railroad
☐ Dept. of Res. and Econ. Dev.
☐ Dept. of Environmental Services
☐ USDA Forest Service
☐ Bureau of Traffic

New Hampshire Department of Transportation
Existing Bridge Section
Bureau of Bridge Design

Hooksett 083/150

NHDOT 008 Inspection
Hooksett 083/150
Wed 8/13/2014 10:37:24
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### Bridge Capacity Summary

**Town:** Hooksett  
**Bridge Number:** 083/150  
**Design Load:** H-12  
**Design Method:** Unknown  
**Rating Method:** Inspection  
**Planfile:** 1-10-3-7 & A-60  
**Checked By:** DEP  
**Route:** Bypassed Historic over Merrimack River  

<table>
<thead>
<tr>
<th>RATED MEMBER</th>
<th>LONGITUDINAL EFFECTIVE SPAN LENGTH</th>
<th>REQUIRED CAPACITY</th>
<th>AVAILABLE CAPACITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>H.T.</td>
<td>170'</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>CURRENT LEGAL LOADS</th>
<th>CERTIFIED VEHICLES</th>
<th>MULTIPLE LANES LOADED</th>
<th>SINGLE LANE LOADED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SINGLE UNIT</td>
<td>OPERATING</td>
<td>POSTING</td>
</tr>
<tr>
<td></td>
<td>MULTIPLE UNIT</td>
<td>INVENTORY</td>
<td>OPERATING</td>
</tr>
</tbody>
</table>

- **RECOMMENDED POSTING:**  
  - Keep Bridge Closed & Barricaded

- **Severed Lower Chord:** Noted 8/12/2014  
  - Imminent Failure Risk (New)

- **Bridge:** Closed & Barricaded

- **Recommended Posting:**
  - 64. (Op.) 200
  - 66. (Inv.) 200

**Stamp:**

- David E. Powelson  
- Professional Engineer  
- April 5, 1995
HOOKSETT 083/150
BYPASSED HISTORIC over MERRIMACK RIVER

Tuesday, August 12, 2014

LOWER CHORD SEVERED ON NORTHEAST, SPAN #3, LOOKING SOUTH. REMAINING STEEL IS PARTIALLY FRACTURED AT WELDED REPAIR.

D146 94

Tuesday, August 12, 2014

TIMBER STRINGERS APPEAR TO BE RESTING ON FLOORBEAM FLANGE IN SPAN #3.

D146 92

Tuesday, August 12, 2014

VIEW OF LOWER CHORD IN SPAN #3 ON NORTHEAST.

D146 93
Tuesday, August 12, 2014

TIMBER DECK HOLED AT NORTH.

Tuesday, August 12, 2014

SEVERAL SIDEWALK BOARDS MISSING, POSSIBLY SOME LOOSE IN SPAN #1.

Tuesday, August 12, 2014

TIMBER DECK HOLED AT SOUTH.